

being indefinite. The Examiner considers the phrase "limited to said thickness" to be indefinite.

By the foregoing amendment, claims 1 and 17 have been amended to instead recite that the structure has a height less than or equal to the thickness of the housing.

The Examiner rejects claims 1-20, 22-24 and 31-32 under 35 U.S.C. §102(b) as being anticipated by Fernwood et al., or alternatively under 35 U.S.C. §103(a) as being unpatentable over Fernwood et al. The Examiner states that Fernwood teaches a device having sample reservoirs 12, collection reservoirs 20, filtration substrate 13 and spouts 14 fixed together with screws and latches. The Examiner considers the filter portions to be of the same thickness as the rest of the sheet, and that the adsorbent filters (TEFLON or TEFLON coated with diatomaceous earth) are inherently functionalized to be adsorbent. The Examiner considers the diatomaceous earth particles to be entrapped in the porous matrix.

Fernwood et al. discloses a plate assembly for multiple filtrations. An upper plate has sample wells, and a membrane sheet forms the floor of each well. That is, the membrane sheet 13 is sandwiched between the upper plate and lower plate (with a gasket 14, drop guide 15 and support plate 16 in between). A collection plate has wells underneath the membrane sheet for collection of the filtered liquid. The drop guide plate is used to direct small quantities of liquid from the membrane to the collection wells.

By the foregoing amendment, claims 1 and 17 have been amended to recite that the structure(s) contained in the one or more apertures have an aspect ratio of less than about 20. Support for the amendment can be found at page 8, lines 12-16 of the instant specification.

In contrast, the Fernwood membrane is a flat sheet or individual membrane disks secured to the bottom of each aperture (column 3, lines 23-30). Accordingly, the Fernwood membrane has relatively high aspect ratio, since the average diameter is substantially greater than the average

height or thickness of the Fernwood membrane. The Fernwood membrane is simply clamped or sandwiched between the reservoir and drip director and a compression seal is made directly to the membrane. In the present invention, rather than simply clamping to a flatsheet membrane, one or more individual formed membranes in a predrilled housing are formed wherein the membranes are limited in thickness by the width of the apertures and thus have the recited aspect ratio. As a result, the sealing process is more reliable, desirable membrane thicknesses can be obtained, and where a plurality of apertures are present, they are integrally separated and partitioned.

With particular reference to claims 8, 16 and 23, nowhere does Fernwood et al. disclose or suggest a structure coterminous with both the first and second surfaces of the housing as recited in these claims.

The Examiner also rejects claims 2 and 10 under 35 U.S.C. §103(a) as being unpatentable over Fernwood and further in view of Foltz, and claim 21 as being unpatentable over Fernwood and further in view of Bowers.

These claims are now believed to be allowable by virtue of their dependence for the reasons set forth above.

New claims 33 and 34 have been added to further define the invention. Fernwood et al. do not disclose or suggest a self-retaining structure in the apertures as is now recited in these claims. Support for the claims can be found at page 16, lines 1-6, for example.

Reconsideration and allowance are respectfully requested in view of the foregoing amendment and remarks.

Respectfully submitted,

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Version with Markings to Show Changes Made

1. (Amended) A housing having a thickness, said housing have a first surface and a second surface spaced from said first surface by said housing thickness, said housing having one or more apertures formed through said housing, each of said one or more apertures containing a structure comprising a porous matrix, said structure having a height between said first surface and said second surface [limited] less than or equal to said thickness, said structure having an aspect ratio of less than about 20.

17. (Amended) A sample preparation devices, comprising [a housing having a thickness and] a sample reservoir and a collection reservoir spaced from said sample reservoir, and a substrate between said sample reservoir and said collection reservoir, said substrate have a first surface and a second surface spaced from said first surface defining a thickness, said substrate comprising one or more recesses formed therethrough, each of said one or more recesses containing a structure comprising a porous matrix, said structure having a height between said first surface and said second surface [limited] less than or equal to said thickness, said structure having an aspect ratio of less than about 20.

33. (Newly added) A housing having a thickness, said housing have a first surface and a second surface spaced from said first surface by said housing thickness, said housing having one or more apertures formed through said housing, each of said one or more apertures containing a structure comprising a porous matrix, said structure having a height between said first surface and said second surface less than or equal to said thickness, said structure being self-retaining in said housing.

34. (Newly added) A filtration device comprising a substrate having first and second spaced surfaces defining a housing thickness and an array of spaced, independent apertures formed through said housing thickness, each of said independent apertures containing a formed porous

matrix, the porous matrix in each independent aperture being segregated from the porous matrix in each other different independent aperture, said first and second surfaces in the space between said apertures being devoid of said porous matrix, said porous matrix adapted to be self-retaining in said apertures.

## Replacement Sheet

sub 817  
Q1  
1. (Amended) A housing having a thickness, said housing have a first surface and a second surface spaced from said first surface by said housing thickness, said housing having one or more apertures formed through said housing, each of said one or more apertures containing a structure comprising a porous matrix, said structure having a height between said first surface and said second surface less than or equal to said thickness, said structure having an aspect ratio of less than about 20.

sub 837  
Q2  
17. (Amended) A sample preparation devices, comprising a sample reservoir and a collection reservoir spaced from said sample reservoir, and a substrate between said sample reservoir and said collection reservoir, said substrate have a first surface and a second surface spaced from said first surface defining a thickness, said substrate comprising one or more recesses formed therethrough, each of said one or more recesses containing a structure comprising a porous matrix, said structure having a height between said first surface and said second surface less than or equal to said thickness, said structure having an aspect ratio of less than about 20.

sub 857  
Q3  
33. (Newly added) A housing having a thickness, said housing have a first surface and a second surface spaced from said first surface by said housing thickness, said housing having one or more apertures formed through said housing, each of said one or more apertures containing a structure comprising a porous matrix, said structure having a height between said first surface and said second surface less than or equal to said thickness, said structure being self-retaining in said housing.

34. (Newly added) A filtration device comprising a substrate having first and second spaced surfaces defining a housing thickness and an array of spaced, independent apertures formed through said housing thickness, each of said independent apertures containing a formed porous

matrix, the porous matrix in each independent aperture being segregated from the porous matrix in each other different independent aperture, said first and second surfaces in the space between said apertures being devoid of said porous matrix, said porous matrix adapted to be self-retaining in said apertures.

A3  
sub 1